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(FILE 'HOME' ENTERED AT 09:32:22 ON 11 SEP 2003)

FILE 'INSPEC' ENTERED AT 09:32:31 ON 11 SEP 2003

L1 772 ETCHSTOP OR ETCH-STOP
L2 782 ETCH(A) STOP
L3 798 L1 OR L2
L4 14226 GAN
L5 3123 ALGAN OR GAALN
L6 1 L5 AND L3

FILE 'STNGUIDE' ENTERED AT 09:37:25 ON 11 SEP 2003

FILE 'CA' ENTERED AT 09:37:35 ON 11 SEP 2003

L7 7 L6
L8 7 L7
L9 7 L7

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=> etch(a)stop
      18921 ETCH
      13677 STOP
L2      782 ETCH(A)STOP
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=> l1 or l2
L3      798 L1 OR L2
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=> gan
L4      14226 GAN
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=> algan or gaaln
      3061 ALGAN
      86 GAALN
L5      3123 ALGAN OR GAALN
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=> l5 and l3
L6      1 L5 AND L3
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=> d l6 1 all
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L6  ANSWER 1 OF 1  INSPEC  (C) 2003 IEE on STN
AN  2001:6984299  INSPEC      DN  A2001-16-8160C-028; B2001-08-2550E-056
TI  In situ dry etch monitoring for GaN/AlGaN based device
    structures.
AU  Lacroix, Y.; Nakanishi, T.; Sakai, S. (Satellite Venture Bus. Lab.,
    Tokushima Univ., Japan)
SO  Proceedings of International Workshop on Nitride Semiconductors
    Tokyo, Japan: Inst. Pure & Appl. Phys, 2000. p.782-5 of 1002 pp. 2 refs.
    Conference: Nagoya, Japan, 24-27 Sept 2000
    Sponsor(s): Japan Soc. Appl. Phys.; Japan Soc. Promotion of Sci
    ISBN: 4-900526-13-4
DT  Conference Article
TC  Experimental; Practical
CY  Japan
LA  English
AB  By monitoring the light emitted during reactive ion etching (RIE) from the
    etched atoms in the plasma above the wafer, it is shown that it is
    possible to reliably determine the etch stop time for
    conventional GaN-based laser diodes and other device structures. The
    technique is based on in situ monitoring of emissions from electronic
    transitions of Ga and other etched atoms from layers of different
    AlxInyGa1-x-yN compositions. For layers containing more aluminum, the etch
    rate is reduced and hence is the density of etched atoms in the plasma,
    resulting in a traceable drop in the signal intensity.
CC  A8160C Surface treatment and degradation in semiconductor technology;
    A5275R Plasma applications in manufacturing and materials processing;
    A4255P Lasing action in semiconductors; B2550E Surface treatment
    (semiconductor technology); B4320J Semiconductor lasers; B4260D Light
    emitting diodes
CT  ALUMINIUM COMPOUNDS; GALLIUM COMPOUNDS; III-V SEMICONDUCTORS; INDIUM
    COMPOUNDS; LIGHT EMITTING DIODES; SEMICONDUCTOR LASERS; SPUTTER ETCHING;
    WIDE BAND GAP SEMICONDUCTORS
ST  GaN/InGaN/AlGaN based laser diode structure; GaN/AlGaN
    based LED structure; in situ dry etch monitoring; light emission;
    reactive ion etching; RIE; etched atoms density; etch stop time;
    electronic transitions; varied AlxInyGa1-x-yN compositions; aluminium;
    etch rate; signal intensity; plasma processing; GaN-AlGaN;
    GaN-InGaN-AlGaN
CHI  GaN-AlGaN int, AlGaN int, GaN int, Al int, Ga int, N int, AlGaN ss, Al ss,
    Ga ss, N ss, GaN bin, Ga bin, N bin; GaN-InGaN-AlGaN int, AlGaN int, InGaN
    int, GaN int, Al int, Ga int, In int, N int, AlGaN ss, InGaN ss, Al ss, Ga
    ss, In ss, N ss, GaN bin, Ga bin, N bin
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ET In; Ga*N; GaN; Ga cp; cp; N cp; Al*Ga*N; Al sy 3; sy 3; Ga sy 3; N sy 3;
AlGa_N; Al cp; Ga; Al*Ga*In*N; Al sy 4; sy 4; Ga sy 4; In sy 4; N sy 4;
Al_xIn_yGa_{1-x-y}N; In cp; V; Ga*In*N; In sy 3; InGa_N; GaN-AlGa_N;
GaN-InGa_N-AlGa_N; Al

L7 ANSWER 1 OF 7 CA COPYRIGHT 2003 ACS on STN
 AN 138:197144 CA
 TI Method for forming Group III nitride materials for semiconductor devices
 IN Sasaoka, Chiaki
 PA NEC Corporation, Japan
 SO U.S. Pat. Appl. Publ., 25 pp.
 CODEN: USXXCO

DT Patent

LA English

IC ICM H01L021-00

ICS H01S005-00; H01L033-00

NCL 257102000; 372045000; 372046000; 257101000; 257103000; 257096000;
 438022000; 438037000

CC 76-3 (Electric Phenomena)

Section cross-reference(s): 75

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2003042496	A1	20030306	US 2002-231163	20020830
	JP 2003078215	A2	20030314	JP 2001-265854	20010903
	CN 1404192	A	20030319	CN 2002-132249	20020903
PRAI	JP 2001-265854	A	20010903		

AB The invention relates to a method for forming Group III nitride materials for semiconductor devices. The device includes a partially etched nitride-based compd. semiconductor crystal layer, which is formed by the steps of (i) forming a non-crystal layer of a nitride-based compd. semiconductor; (ii) etching at least a part of the non-crystal layer to form a partially etched non-crystal layer; and (iii) crystg. the partially etched non-crystal layer to form a partially etched nitride-based compd. semiconductor crystal layer.

ST group IIIA nitride semiconductor device

IT Etching masks

(etch stop; method for forming Group III nitride materials for semiconductor devices)

IT Phosphates, processes

RL: NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)

(etchant; method for forming Group III nitride materials for semiconductor devices)

IT Cladding

Doping

Electric contacts

Etching

Metalorganic vapor phase epitaxy

Semiconductor films

(method for forming Group III nitride materials for semiconductor devices)

IT Oxides (inorganic), uses

RL: TEM (Technical or engineered material use); USES (Uses)

(method for forming Group III nitride materials for semiconductor devices)

IT Etching

(selective; method for forming Group III nitride materials for semiconductor devices)

IT Group IIIA element nitrides

RL: TEM (Technical or engineered material use); USES (Uses)

(semiconductor materials; method for forming Group III nitride materials for semiconductor devices)

IT Oxidation

(surface; method for forming Group III nitride materials for semiconductor devices)

IT Crystallization

(thermally induced; method for forming Group III nitride materials for semiconductor devices)

IT 125297-45-2P, Aluminum gallium nitride (Al_{0.2}Ga_{0.8}N) 162688-39-3P, Gallium indium nitride (Ga_{0.99}In_{0.01}N)
 RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
 (barrier layer; method for forming Group III nitride materials for semiconductor devices)

IT 1284-72-6, Bis(cyclopentadienyl) magnesium 7803-62-5, Silane, reactions
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (dopant source; method for forming Group III nitride materials for semiconductor devices)

IT 7439-95-4, Magnesium, uses 7440-21-3, Silicon, uses
 RL: MOA (Modifier or additive use); USES (Uses)
 (dopant; method for forming Group III nitride materials for semiconductor devices)

IT 7782-44-7, Oxygen, processes
 RL: MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)
 (dopant; method for forming Group III nitride materials for semiconductor devices)

IT 7631-86-9, Silica, uses
 RL: TEM (Technical or engineered material use); USES (Uses)
 (etching mask; method for forming Group III nitride materials for semiconductor devices)

IT 110759-40-5P, Aluminum gallium nitride (Al_{0.1}Ga_{0.9}N) 157308-78-6P, Gallium indium nitride (Ga_{0.85}In_{0.15}N)
 RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
 (semiconductor material; method for forming Group III nitride materials for semiconductor devices)

IT 25617-97-4, Gallium nitride (GaN) 106097-44-3, Aluminum gallium nitride (AlGaN) 127575-65-9, Aluminum gallium indium nitride (AlGaInN)
 RL: TEM (Technical or engineered material use); USES (Uses)
 (semiconductor material; method for forming Group III nitride materials for semiconductor devices)

IT 24304-00-5, Aluminum nitride
 RL: TEM (Technical or engineered material use); USES (Uses)
 (semiconductor materials; method for forming Group III nitride materials for semiconductor devices)

IT 75-24-1, Trimethylaluminum 1445-79-0, Trimethylgallium 3385-78-2, Trimethylindium 7664-41-7, Ammonia, reactions
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (vapor deposition precursor; method for forming Group III nitride materials for semiconductor devices)

L7 ANSWER 2 OF 7 CA COPYRIGHT 2003 ACS on STN
 AN 137:286139 CA
 TI Semiconductor laser devices
 IN Hasegawa, Yoshiaki; Otsuka, Nobuyuki
 PA Matsushita Electric Industrial Co., Ltd., Japan
 SO Jpn. Kokai Tokkyo Koho, 11 pp.
 CODEN: JKXXAF

DT Patent
 LA Japanese
 IC ICM H01S005-343
 ICS H01L021-205
 CC 73-10 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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PI	JP 2002299768	A2	20021011	JP 2001-98653	20010330

PRAI JP 2001-98653 20010330

AB The devices comprise: a sapphire substrate; an n-GaN buffer layer; an n-GaN contact layer having an n shoulder electrode; and an n-AlGaIn cladding, an n-GaN guide, a GaInN/GaN MQW active, a p-AlGaIn cap, a p-GaN guide, a p-AlGaIn 1st cladding, a p-AlGaIn etch stop, a p-AlGaIn 2nd cladding, a p-GaN contact and a p electrode layer.

ST aluminum gallium indium nitride laser

IT Etching
Quantum well devices
Quantum well heterojunctions
Semiconductor lasers
(semiconductor laser devices)

IT 1344-28-1, Aluminum oxide (Al₂O₃), uses 7429-90-5, Aluminum, uses 7440-02-0, Nickel, uses 7440-32-6, Titanium, uses 7440-57-5, Gold, uses 7631-86-9, Silica, uses 25617-97-4, Gallium nitride (GaN) 106097-44-3, Aluminum gallium nitride (AlGaIn) 110584-43-5, Aluminum gallium nitride al0.07ga0.93n 120994-23-2, Gallium indium nitride (GaInN) 132238-81-4, Gallium indium nitride (Ga_{0.9}In_{0.1}N) 136756-15-5, Aluminum gallium nitride al0.15ga0.85n
RL: DEV (Device component use); USES (Uses)
(semiconductor laser devices)

L7 ANSWER 3 OF 7 CA COPYRIGHT 2003 ACS on STN

AN 134:11296 CA

TI Nitride semiconductor laser devices and manufacture

IN Sugawara, Takashi; Kidoguchi, Isao; Suzuki, Masakatsu; Miyanaga, Yoshiko; Kume, Masahiro; Mizuchi, Kiminori; Ban, Yusaburo

PA Matsushita Electric Industrial Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 9 pp.
CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM H01L033-00

CC 73-10 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 76

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2000332290	A2	20001130	JP 1999-139717	19990520
PRAI	JP 1999-139717		19990520		

AB The devices comprise: (1) a sapphire substrate; (2) an n-GaN buffer layer; (3) an n-GaN contact layer with an n shoulder electrode; and (4) an n-AlGaIn cladding, (6) an n-GaN guide, (7) a GaInN-QW/GaN-barrier MQW active, (8) a p-GaN guide, (9) a p-AlGaIn 1st cladding, (10) a p-GaN etch stop, (11) a p-AlGaIn 2nd cladding, (12) a p-GaN contact and (13) a p electrode, where (13)-(11) and (12)-(4) form a 1st and a 2nd mesa stripe, resp., formed using a Ta and a Pt etch mask and a pyrophosphoric acid as an etchant.

ST gallium indium nitride MQW mesa laser; aluminum gallium nitride MQW mesa laser

IT Etching
Etching masks
Quantum well devices
Quantum well heterojunctions
Semiconductor lasers
(nitride semiconductor laser devices and manuf.)

IT 25617-97-4, Gallium nitride (GaN) 110584-43-5, Aluminum gallium nitride al0.07ga0.93n 124088-93-3, Gallium indium nitride ga0.8in0.2n
RL: DEV (Device component use); USES (Uses)
(nitride semiconductor laser devices and manuf.)

IT 2466-09-3, Pyrophosphoric acid

RL: DEV (Device component use); RCT (Reactant); RACT (Reactant or reagent); USES (Uses)

(nitride semiconductor laser devices and manuf.)

IT 7440-06-4, Platinum, uses 7440-25-7, Tantalum, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(nitride semiconductor laser devices and manuf.)

L7 ANSWER 4 OF 7 CA COPYRIGHT 2003 ACS on STN

AN 133:215299 CA

TI Gallium nitride type semiconductor laser devices and manufacture

IN Okumura, Toshiyuki

PA Sharp Corp., Japan

SO Jpn. Kokai Tokkyo Koho, 12 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM H01S005-323

ICS H01L033-00

CC 73-10 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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PI JP 2000252589	A2	20000914	JP 1999-52074	19990301
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PRAI JP 1999-52074		19990301		
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AB The devices comprise: an n electrode; an n-GaN substrate; an n-GaN buffer, an n-GaN crack prevention, an n-AlGaIn cladding, an n-GaN guide, a GaInN MQW active, a p-AlGaIn vaporization prevention, a p-GaN guide, a p-AlGaIn 1st cladding, and a p-GaN etch stop layer; a p-AlGaIn 2nd cladding ridge stripe layer; a p-GaN contact layer formed on the ridge; a p electrode; and a SiO₂ current confinement layer, where the angle between the stripe and the laser resonance axis is 90.degree.+-0.3.degree.; and the full width at half height of the laser beam is < 3 .mu.m.

ST aluminum gallium nitride ridge stripe laser; indium gallium nitride ridge stripe laser

IT Cavity resonators

Laser cladding

Quantum well devices

Quantum well heterojunctions

(gallium nitride type semiconductor laser devices and manuf.)

IT 1317-82-4, Sapphire 7631-86-9, Silica, uses 25617-97-4, Gallium nitride 110759-40-5, Aluminum gallium nitride al0.1ga0.9n 125297-45-2, Aluminum gallium nitride al0.2ga0.8n 132238-81-4, Gallium indium nitride ga0.9in0.1n 157308-78-6, Gallium indium nitride ga0.85in0.15n 161117-55-1, Gallium indium nitride ga0.97in0.03n

RL: DEV (Device component use); USES (Uses)

(gallium nitride type semiconductor laser devices and manuf.)

L7 ANSWER 5 OF 7 CA COPYRIGHT 2003 ACS on STN

AN 131:25562 CA

TI Semiconductor light-emitting devices and manufacture thereof

IN Tamamura, Koji

PA Sony Corp., Japan

SO Jpn. Kokai Tokkyo Koho, 8 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM H01S003-18

ICS H01L033-00

CC 73-10 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 76

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 11168257	A2	19990622	JP 1997-332840	19971203
PRAI	JP 1997-332840		19971203		
AB	The devices comprise: an n-GaAs substrate; an n-GaAs buffer layer; an n-GaAs contact layer with an n electrode thereon; an n- AlGa N cladding, an n-GaN light guide, a GaInN MQW active, a p-GaN light guide, a p- AlGa N cladding, and a p-GaN etch stop layer; an inverted mesa comprising a p-GaN contact and a p electrode layer; an AlN and an n-GaN current block layer burying the mesa laterally; and a SiNx protective layer.				
ST	gallium indium nitride MQW mesa laser; aluminum gallium nitride MQW mesa laser; laser mesa gallium nitride MQW				
IT	1344-28-1, Aluminum oxide (Al ₂ O ₃), uses 12033-89-5, Silicon nitride, uses 24304-00-5, Aluminum nitride (AlN) 25617-97-4, Gallium nitride (GaN) 106097-44-3, Aluminum gallium nitride (AlGa N) 109371-84-8, Silicon nitride (SiO ₂ -1N ₀ -1) 157308-78-6, Gallium indium nitride ga0.85in0.15n 162250-20-6, Gallium indium nitride ga0.98in0.02n				
RL:	DEV (Device component use); USES (Uses) (semiconductor light-emitting buried mesa DH devices and manuf.)				
L7	ANSWER 6 OF 7 CA COPYRIGHT 2003 ACS on STN				
AN	130:73627 CA				
TI	Semiconductor light-emitting elements				
IN	Takahashi, Takashi				
PA	Ricoh Co., Ltd., Japan				
SO	Jpn. Kokai Tokkyo Koho, 11 pp. CODEN: JKXXAF				
DT	Patent				
LA	Japanese				
IC	ICM H01S003-18 ICS H01L033-00				
CC	73-10 (Optical, Electron, and Mass Spectroscopy and Other Related Properties) Section cross-reference(s): 76				

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 10326940	A2	19981208	JP 1997-150292	19970523
PRAI	JP 1997-150292		19970523		
AB	A side-up LED comprises: a sapphire substrate; an n-GaN buffer layer; an n-GaN contact layer; an n- AlGa N cladding layer; an GaInN active layer; a AlGaInN etch-stop layer; and a ridge stripe comprising a p- AlGa N cladding and a p-GaN contact layer.				
ST	gallium indium nitride DH LED				
IT	Electroluminescent devices (semiconductor light-emitting elements)				
IT	25617-97-4, Gallium nitride (GaN) 106097-44-3, Aluminum gallium nitride (AlGa N) 120994-23-2, Gallium indium nitride (GaInN) 127575-65-9, Aluminum gallium indium nitride (AlGaInN) 136756-15-5, Aluminum gallium nitride al0.15ga0.85n 153281-80-2, Gallium indium nitride (Ga0.95In0.05N) 210430-42-5, Gallium nitride phosphide 217948-26-0, Aluminum gallium indium nitride (Al0.33Ga0.6In0.07N) 217948-30-6, Aluminum indium nitride (Al0.82In0.18N)				
RL:	DEV (Device component use); USES (Uses) (semiconductor light-emitting elements)				

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